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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/653,996	09/04/2003	Paul S. Zerwekh	120602-1	4582

29626 7590 01/21/2005

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EXAMINER

MILLER, TAKISHA S

ART UNIT PAPER NUMBER

2855

DATE MAILED: 01/21/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/653,996	ZERWEKH ET AL.	
	Examiner	Art Unit	
	Takisha Miller	2855	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-21 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>03252004</u> . | 6) <input type="checkbox"/> Other: ____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-3 are rejected under 35 U.S.C. 102(b) as being anticipated by Andrews et al.

(5,907,403)(hereinafter Andrews).

- a. With respect to claim 1, Andrews teaches an optical sensor (210) comprising a pressure sensor co-located with a temperature sensor (Fig.3).

- b. With respect to claim 2, Andrews teaches an optical sensor (210) wherein said pressure sensor comprises a launch fiber (12/212) having an end (212e/14) positioned within a tube (30) and a reflective fiber (16) having a first end (18) positioned an initial distance from the end (212e/14) of said launch fiber (12/212), said launch and reflective fibers being bonded to said tube (30)(Col. 4, lines 25-27).

- c. With respect to claim 3, Andrews teaches an optical sensor (210) wherein optical coatings are positioned on said end (212e/14) of said launch fiber (12/212) and said first end (18) of said reflective fiber (16)(Col. 4, lines 11-18).

3. Claims 16-18 are rejected under 35 U.S.C. 102(b) as being anticipated by Murphy et al.

(5,301,001)(hereinafter Murphy).

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- a. With respect to claims 16 and 17, Murphy teaches an optical sensor (34) comprising a first pressure sensor co-located with a first temperature sensor and a second pressure sensor co-located with a second temperature sensor which are each located within a cavity of a tube (45/46)(Fig.8).
- b. With respect to claim 18, Murphy teaches an optical sensor (34) wherein said first and second pressure sensors each comprise a launch fiber (31/32) having an end positioned within the cavity of said tube (45/46) and a reflective fiber (47/48) having a first end positioned an initial distance from the end of said launch fiber (31/32), said launch and reflective fibers being bonded to said tube (45/46)(Fig.8)(Col. 7, lines 6-13).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 4-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Andrews in view of Sun et al. (4,986,671)(hereinafter Sun).

- a. With respect to claims 4, 8-15, Andrews teaches an optical sensor (210) and method comprising a temperature sensor but lacks teaching the temperature sensor comprising an end of a reflective fiber enclosed within a cap formed of a material with a refractive index that changes with a changing temperature. Sun teaches an end of a reflective fiber (13) enclosed within a cap/silicone (21)(Col. 4, lines 13-16) formed of a

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material (27) with a refractive index that changes with a changing temperature (Col. 3, lines 61-66). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Andrews to include a cap as taught by Sun in order to more easily measure temperature by providing separate optical signals for each of the parameters being measured (see Sun; Col. 2, lines 58-59).

b. With respect to claim 5, Andrews teaches an optical sensor (210) wherein said launch and reflective fibers are bonded into a cavity (20) of said tube (30)(Fig.2a).

c. With respect to claim 6, Andrews teaches an optical sensor (210) wherein said pressure sensor determines a pressure by measuring an optical displacement (S) between the end of said launch fiber and the first end of said reflective fiber (Fig.2b)(Col.4, lines 49-51).

d. With respect to claim 7, Andrews teaches an optical sensor (210) wherein as pressure is exerted against said tube (30), the distance (S) between the end of the launch fiber and the first end of the reflective fiber is diminished (Col.4, lines 30-37).

6. Claims 19-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Murphy in view of Sun et al. (4,986,671)(hereinafter Sun). Murphy teaches an optical sensor (34) and method but lacks teaching the temperature sensors comprising an end of a reflective fiber enclosed within a cap formed of a material with a refractive index that changes with a changing temperature. Sun teaches an end of a reflective fiber (13) enclosed within a cap/silicone (21)(Col. 4, lines 13-16) formed of a material (27) with a refractive index that changes with a changing temperature (Col. 3, lines 61-66). It would have been obvious to one of ordinary skill

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in the art at the time of the invention to modify Murphy to include a cap as taught by Sun in order to more easily measure temperature by providing separate optical signals for each of the parameters being measured (see Sun; Col. 2, lines 58-59).

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.


- 5,183,338 teaches an optical temperature measurement device.
- 5,255,980 teaches a temperature sensor.
- 6,125,216 teaches an optical fibre sensor.
- 4,988,212 teaches a fiber optic sensing apparatus.
- 6,572,265 teaches an optical temperature measuring method and apparatus.
- 6,056,436 teaches an optical temperature and strain sensor.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Takisha Miller whose telephone number is (571) 272-2184. The examiner can normally be reached on Monday - Friday (7:00 am - 3:30 pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Lefkowitz can be reached on (571) 272-2180. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



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